



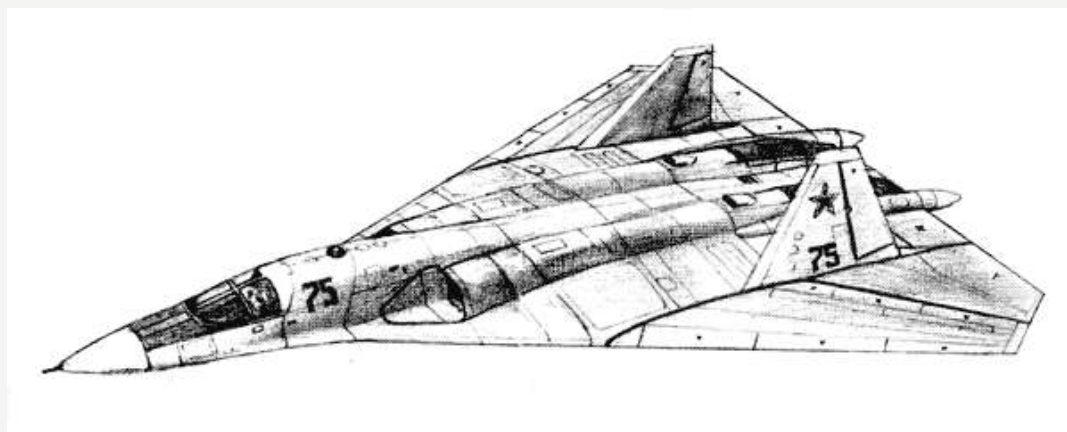
Object 54/54C - NOVO-C

DATA FOR 2009 (standard update)

Object 54/54C - NOVO-C

★★★

Supersonic bomber project by the Kulon Design Bureau (P.O. Sukhoi Design Bureau). The project was developed within the framework of the T-60S bomber program. Redesign to "object 54" began after 1983 (change in the design bureau management - M.P. Simonov was appointed general designer). The design of "object 54" was carried out until 1991. Probably in 1994, for AL-41F engines with flat nozzles, "object 54" was redesigned as "object 54S". In 1997 (message dated 29.01.1997), work on the T-60S program ("object 54S") was stopped in favor of modernization of the Tu-22M3 fleet. The model of the aircraft was probably built at the Novosibirsk Aircraft Plant named after V. Chkalov (estimated in 1994-1995). The model (or some parts of the structure) was discovered by US intelligence and was given the name for unidentified objects discovered from space "NOVO-C" (Novosibirsk Aircraft Plant, the third unidentified object upon discovery). There is no exact visual identification of the aircraft. There is no exact match between the domestic and Western names. It is unknown whether the aircraft was actually built or not. By default - the presumed performance characteristics of "object 54C". According to other data, the creation of the aircraft was stopped in 1992 by the Decree of the President of Russia and was presented as a peace initiative.



Alleged image of "object 54C" (Stealth vehicles. Reality and perspective. Website <http://paralay.com>, 2009)

Author: DIMMI

Created: 09/15/2009 02:14:50

Comments: 4

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T-60S (project)

DATA FOR 2009 (standard update)

T-60 / T-60S

★★★

A medium-range supersonic bomber project by the Kulon Design Bureau (P.O. Sukhoi Design Bureau). The aircraft was developed as a possible replacement for the Tu-22M3 bomber. Development began on the basis of a preliminary design for the promising T-60 bomber proposed by TsAGI in 1981. During the development of the preliminary design for the aircraft at TsAGI (under a different name and in the late 1970s) and the T-60S project at the P.O. Sukhoi Design Bureau, developments in the T-4MS bomber project of the same design bureau were used. Chief Designer - N. Chernyakov, Lead Designer of the Project Department - V.F. Marov. Probably in 1982-1983 after blowing through models of the T-60 preliminary design by TsAGI in T-106 wind tunnels. T-112 and T-113 and the rejection of "twin-pipe" turbofan engines, the project was reconfigured according to the type that we consider to be the T-60S. The aircraft was planned to be accepted into service by 2003. Apparently, after the change of management of the design bureau in 1983-1985, another change in the project occurred to "object 54". There is no exact visual identification of the aircraft. By default - the presumable performance characteristics of the TsAGI T-60 preliminary design.



A supposed image of the T-60 according to Petr Butovsky, a Russian correspondent for AIR International. We believe that this is a T-60 - a preliminary design by TsAGI (<http://www.testpilot.ru>)

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- ✚ Air-to-ground missiles
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Latest comments

Electronic warfare complex K

PPP Wrote:...After all, Donald Coo has enough RTR systems - he was guaranteed to "write"...

Big Prision 2017-11-01 18:47

Electronic warfare complex K

Altimeter Wrote:...If the reason for absence of the first is known, then Voodoo was not bad...

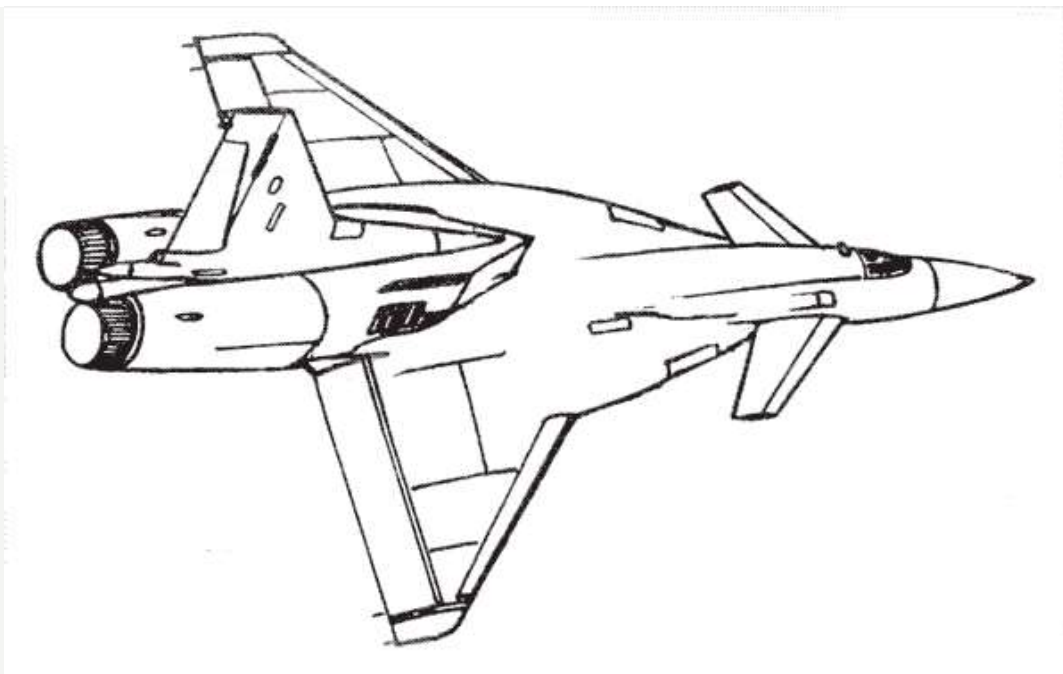
Bolshoy Prision 2017-11-01 18:28

Electronic warfare complex K

PPP Wrote:Max Wrote:data on no use of Khibiny ...There are general rules of counteraction...

Altimeter 2017-11-01 17:46

Electronic warfare complex K



Alleged image of T-60S from Western aviation press (corrected, taken from Ganin S.M., Karpenko A.V., Kolnogorov V.V., Domestic bombers (1945-2000). Part 2. Moscow - St. Petersburg, TM - Bastion, 2001)

Author: [DIMMI](#)

Created: 04.09.2009 00:46:34

Comments: [16](#)

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About the production of engines for cruise missiles and engine building

On July 8, 2013, a press conference was held in Moscow at the Interfax news agency dedicated to the conclusion of a contract between NPO Saturn and GosMKB Raduga for the production of small-sized TRDD-50 engines for strategic cruise missiles. This is the second contract between NPO Saturn and GosMKB. We present a brief summary of the factual materials on cruise missiles and related areas.

The first serial deliveries of engines for UAVs manufactured by JSC NPO Saturn in the interests of JSC GosMKB Raduga named after A. Ya. Berezhnyak began in 2008. The volume of the first contract for deliveries from 2008 to 2010 was less than 1 billion rubles. Then there was a contract in 2011 for the period from 2011 to 2015. The current contract was signed on July 5, 2013 for engines for cruise missiles for the amount of over 4 billion rubles and will be valid from 2013 to 2015. Relative to the production volumes of 2010-2012, the production program for 2013-2015 has increased by 3.5 times.

During the development of the Kh-55 cruise missile, two different engines were created for the missile - the TRDD-50 of the Omsk Design Bureau and the R-95-300 of the MNPO Soyuz. By decision of the chief designer of the Kh-55 cruise missile, Igor Seleznev, the choice was made in favor of the R-95-300 engine. The chief designer of the engine is Oleg Favorsky. Serial production of the engine was launched in Zaporozhye, Ukraine. The engine was produced in large series - in some years the production volume reached 1,500 units. R-95-300 were used on the Kh-55 and Kh-55SM cruise missiles. The engine was also used by the Novator Design Bureau on its naval missiles. After the collapse of the USSR (let me remind you - this happened in 1991), Russian President Boris Nikolayevich Yeltsin set the task of import substitution for engines for strategic cruise missiles. Then, the Rybinsk Engine Plant began to master the serial production of TRDD-50 engines developed in Omsk. At the moment, the import substitution program has been successfully completed and only Russian-made engines are used on strategic cruise missiles.

There are two options - TRDD-50A - an aviation version and TRDD-50B - a naval version. Engines for aircraft cruise missiles (TRDD-50A) are currently manufactured by NPO Saturn, while production and testing of the engine variant for sea cruise missiles (TRDD-50B) is still carried out by the Omsk Design Bureau. It should also be noted that the Omsk Engine Design Bureau has now effectively become a part of NPO Saturn as a branch.



An engine variant for the MKB Raduga cruise missile with a pylon installation - a small-sized TRDD-50AT engine ("product 36MT") developed and produced by OMKB, MAKS-2005 exhibition (photo - Evgeny Erokhin, <http://www.missiles.ru>).

Author: [DIMMI](#)

Created: 14.07.2013 01:12:16

Comments: [2](#)

And a video-schmideo to boot
<https://youtu.be/kOcQ3ru4QUE> pa
fa

[oldstaryi](#) 2017-10-31 20:43

Electronic warfare complex K

In principle, so much has been written about Khibiny that, thanks to some, it is not entirely...

[oldstaryi](#) 2017-10-31 20:37

Electronic warfare complex K

Photo of the piece of iron itself

[Sierra](#) 2016-09-18 16:10

Electronic warfare complex K

The material, of course, is not entirely appropriate, but it fits in with the discussion here...

[osankin](#) 2014-09-09 12:05

Electronic warfare complex K

PPP Wrote: Moreover - you can't explain why they are suppressing Aegis radars at such a low...

[Artist](#) 2014-09-09 00:12

Electronic warfare complex K

Max Wrote: Ok, thanks for the answer, frankly speaking, not a sin answer to those...

[Artist](#) 2014-09-08 23:43

Electronic warfare complex K

Max Wrote: data on the non-use of Khibiny ... There are general rules counteracting the means...

[PPP](#) 2014-09-05 18:28

Be-200 / Be-200ChS

DATA FOR 2013 (standard update)

Be-200 / Be-200ES "Altair"



Multipurpose amphibious aircraft. The aircraft was created by the Beriev Aircraft Company based on the A-40 amphibious aircraft, chief designer - Alexander Vasilyevich Yavkin (from 1992 to May 31, 2007). The design of the aircraft began in 1992. The working design of the Be-200 was carried out taking into account the airworthiness standards of FAR-25 (USA), which will facilitate the certification of the aircraft according to the standards of the Federal Aviation Register of the USA (FAA) and the European Aviation Register (JAA). Aircraft tests were also to be carried out taking into account these standards. Production of the Be-200, starting with prototypes, is carried out at the aircraft plant in Irkutsk. The first Be-200 prototype made its maiden flight on September 24, 1998 (pilot - K.V. Babich, co-pilot - V.P. Dubensky, engineer - A.N. Ternovoy). On April 27, 1999, the aircraft flew to Taganrog. Aircraft testing continued in 1999 in Taganrog and Gelendzhik. Serial production of the Be-200 at the Irkutsk Aircraft Plant began in 2000. On August 27, 2002, the second prototype of the Be-200, which was as close as possible to the Be-200ChS modification in terms of equipment and capabilities, made its maiden flight. In the spring of 2003, a contract was signed for the delivery of 7 Be-200ChS aircraft to the aviation of the Russian Emergencies Ministry by the end of 2005. The first serial Be-200ChS made its maiden flight in Irkutsk on June 13, 2003 and was handed over to the aviation of the Russian Emergencies Ministry in 2003.



(C) A. Zhukov (photo ID109977)

RussianPlanes.NET

Be-200ChS, aircraft number RF-21512, leaves the water in Gelendzhik, September 2006 (photo by A. Zhukov, <http://russianplanes.net/id109977>).



(C) A. Zhukov (photo ID109978)

RussianPlanes.NET

Be-200ChS, aircraft number RF-32767. Gelendzhik, September 2006 (photo by A. Zhukov, <http://russianplanes.net/id109978>).



The second flying Be-200 (aircraft number RF-21512) during firefighting in the area of the cities of Nizhny Novgorod, Cheboksary and Ryazan, August 2010 (<http://www.beriev.com>).

Author: [DIMMI](#)

Created: 02.01.2012 17:01:54

Comments: [35](#)

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MiG-31 FOXHOUND Registry

DATA AS OF 2012 (standard update)

MiG-31 - FOXHOUND Registry

The registry is a list of individual examples of the equipment model. This article is an appendix to the description of the [MiG-31 FOXHOUND aircraft](#)



MiG-31BM, No. 16, blue, from Monchegorsk. Photo taken during a surprise inspection of the Air Force's combat readiness at the Pemboy training ground near Vorkuta, May 2013 (photo by Alexey Reznichenko, <http://lelik1970.livejournal.com/>).



MiG-31BM, No. 10, blue, from Monchegorsk. Photo taken during a surprise inspection of the Air Force's combat readiness at the Pemboy training ground near Vorkuta, May 2013 (photo by Alexey Reznichenko, <http://lelik1970.livejournal.com/>).



MiG-31BM, No. 10, blue, from Monchegorsk. Photo taken during a surprise inspection of the Air Force's combat readiness at the Pemboy training ground near Vorkuta, May 2013 (photo by Alexey Reznichenko, <http://lelik1970.livejournal.com/>).



MiG-31DZ, red #58, from Khotilovo, Perm. Photo taken during a surprise inspection of the Air Force's combat readiness at the Pemboy training ground near Vorkuta, May 2013 (photo by Alexey Reznichenko, <http://lelik1970.livejournal.com/>).



MiG-31DZ, red #31, from Khotilovo, Perm. Photo taken during a surprise inspection of the Air Force's combat readiness at the Pemboy training ground near Vorkuta, May 2013 (photo by Alexey Reznichenko, <http://lelik1970.livejournal.com/>).

Author: [DIMMI](#)

Created: 02.05.2011 22:17:55

Comments: [1](#)

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RAT-52

DATA AS OF 2011 (standard replenishment)

RAT-52

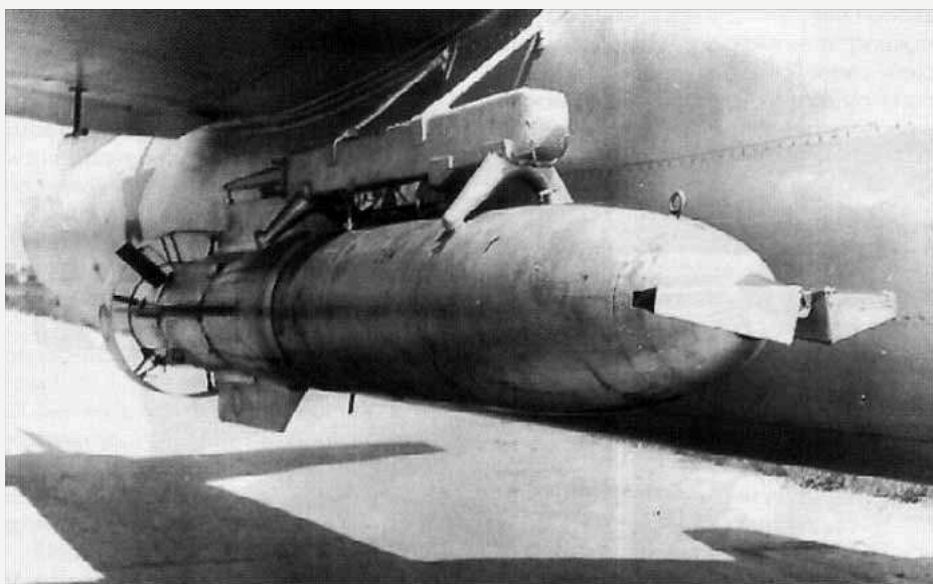
RAT-52M

★★★

Aircraft anti-ship high-altitude straight-running rocket torpedo. Development was started by the Resolution of the Council of Ministers of the USSR at the Research Institute-1 of the USSR Ministry of Agriculture and Machine Building in 1947. The prototype of the rocket torpedo was the RT-45 underwater rocket. After the development team was transferred to the Research Institute-2 of the USSR Ministry of Aviation Industry, the design of the torpedo was continued there under the D-44/A-2 theme. Chief Designer - G.Ya.Dillon, Deputy - V.P.Golikov (since 1958, after the death of G.Ya.Dillon, he was appointed Chief Designer). Sea trials of the experimental batch of RAT-52 torpedoes began in 1947. Several Tu-2T torpedo bombers adapted for the use of jet-propelled torpedoes with a suspension under the center section were produced for the tests by order of the USSR Ministry of Aviation Industry No. 782 of 14.12.1946. The experimental batch of RAT-52 torpedoes was produced by Plant No. 500 of the USSR Ministry of Aviation Industry (Moscow) in 1949-1950. The first torpedo launches from the Tu-2T were made in 1949. After that, the production of pre-production batches and serial production of RAT-52 torpedoes was transferred to Plant No. 466 "Krasny Oktyabr" (Leningrad). The RAT-52 torpedoes were equipped and factory tested at the plant's branches in Feodosia (Crimea) and Lisiy Nos (Leningrad Region). Factory tests were completed in 1950. State tests of the RAT-52 were conducted in 1952. The rocket torpedo was accepted into service on February 4, 1953. In 1953, the torpedo entered service with the Il-28T and Tu-14T torpedo bombers.



RAT-52 rocket torpedo suspension on Il-28T. 759th Torpedo Aviation Regiment, Khabarovo airfield, 19.05.1970 (photo - G.S. Shutov, <http://www.bellabs.ru/Fotab/>).



RAT-52 torpedo on the suspension unit under the Il-28T (Artemyev A. Wings over the sea. // Aviation and Cosmonautics. No. 10 / 2006).

Author: [DIMMI](#)

Created: 18.01.2009 00:02:16

Comments: 1

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Tu-126 - MOSS

DATA AS OF 2013 (in progress)

Tu-126 / product "L" ("Liana") - MOSS

★★★

Airborne early warning and control aircraft (AEW&C). Development of a radar picket aircraft to provide radar cover for the Far North from air intrusion was initiated by Resolution of the USSR Council of Ministers No. 608-293 of July 4, 1958 and Order of the State Aviation Committee No. 211 of July 17, 1958. These same documents also specified the creation of the Tu-28-80 long-range interception complex - it was assumed that the two complexes would, among other things, operate jointly. OKB-156 of A.N. Tupolev was appointed the lead design bureau for the complex as a whole, the radar and equipment were developed by NII-17, OKB-373, NII-25 and NII-101. According to the Decree, joint tests of the Tu-126 aircraft were to begin in the first quarter of 1961. By the end of 1958, the Customer issued detailed tactical and technical requirements for the creation of the aircraft - the Air Force Command approved the requirements on April 9, 1959, and the Air Defense Command - on September 2, 1959. The AWACS aircraft was initially designed on the basis of the Tu-95 heavy bomber using the promising Ozero radar. The option of using the high-altitude version of the Tu-95 - the Tu-96, as the base aircraft was also studied, and later the Tu-116 with a large sealed passenger compartment. All these aircraft did not allow the placement of radar equipment due to the small volume of the fuselage.

By 1960, after conducting research, it was decided to select the Tu-114 passenger aircraft as the base aircraft, since it was better suited for placing equipment and personnel than the Tu-95. The general appearance of the Tu-126 based on the Tu-114 was approved on January 30, 1960, and by Resolution of the Council of Ministers of the USSR No. 567-230 of May 30, 1960, the creation of an aircraft with the Liana radar was assigned - the lead developer was OKB-156 of A. N. Tupolev, the general management of the development was carried out by N. I. Bazenkov, who supervised the entire Tu-95 / Tu-114 direction. Direct design was carried out by the branch of the design bureau at aircraft plant No. 18 in Kuibyshev (chief designer - A. I. Putilov). The development of the Liana radar complex was carried out by Research Institute-17 of the USSR Ministry of Radio Industry. Production of the aircraft was planned at aircraft plant No. 18 in Kuibyshev.

The first prototype of the Tu-126 was built at Aircraft Plant No. 18 (Kuibyshev) in the fall of 1961. The first flight was made in 1962. Testing of the aircraft and equipment complex was carried out until the fall of 1964. The Tu-126 AWACS aircraft was accepted into service in 1965. Serial production continued until 1968. A total of 9 aircraft were built.



Tu-126 before mid-air refueling. 1981-1983 (photo from amon_goeth's archive, published in 2009, <http://ru-aviation.livejournal.com>).



Tu-126 of the 67th UAE AWACS, Zokniai airfield, Šiauliai, Lithuania. 1981-1983 (photo from amon_goeth's archive, published in 2009, <http://ru-aviation.livejournal.com>).

Author: [DIMMI](#)

Created: 30.04.2013 22:07:38

Comments: 8

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Tu-95 - BEAR

ARTICLE IS NOT COMPLETE (data for 1997, additions 2010)

Tu-95 BEAR-A, B, C, D, E, F, G, H, J

Long-range bomber, carrier of cruise missiles. Chief designer of the Tu-95 project is N. Bazhenkov (since 1976 - N. Kirsanov). R & D began in 1949. The USSR Council of Ministers decree on the creation of the Tu-95 was adopted on July 11, 1951. Release of working drawings of the first prototype Tu-95/1 and the beginning of creation - September 1951. The first flight of the Tu-95/1 prototype - November 11, 1952 (pilots A. Perelet and A. Chernov), a catastrophe occurred on the seventeenth flight (May 11, 1953). In July 1954, the second prototype Tu-95/2 with TV-12 (NK-12) engines was built. The first flight of the Tu-95/2 - February 16, 1955 (pilots M. Nyukhtikov and I. Sukhomlin). Factory tests were completed in January 1956. The first two production aircraft took off in October 1955 (Aircraft Plant No. 18 in Kuibyshev). Since 1957, Tu-95M has been in production (production of both modifications ended in 1959) with NK-12 and NK-12M engines, respectively (Tu-95 and Tu-95M). Adopted into service in August 1957.



Tu-95MS Bear-H (publication - 2012, photo - V.Savitsky, <http://www.mil.ru>).



Tu-95MS BEAR-H and B-52H (<http://militaryphotos.net>)

Author: [DIMMI](#)

Created: 16.08.2009 23:29:42

Comments: [65](#)

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RDS-2 (1946. project)

DATA AS OF 2013 (standard replenishment)

RDS-2 / S-2 / product 601

★★★

The second version of the first domestic atomic bomb. The atomic bomb was developed by Design Bureau No. 11 of the Measuring Instruments Laboratory No. 2 of the USSR Academy of Sciences (since 1950, the Design Bureau was transferred to the structure of the First Main Directorate under the USSR Council of Ministers) in accordance with the scientific and technical requirements of the scientific director of work on the creation of atomic weapons, Academician Kurchatov (Measuring Instruments Laboratory No. 2 of the USSR Academy of Sciences, created in February 1943) and the chief designer of Design Bureau No. 11 Yu. B. Khariton (for more information, see [RDS-1](#)). The RDS-2 bomb was the second version of the RDS bomb, which was produced with a "gun" charge. The bomb had a different ballistic body and the working substance of the charge was uranium-235 ("light fuel").

On June 21, 1946, by Resolution of the Council of Ministers of the USSR No. 1286-525ss "On the plan for the development of work of Design Bureau No. 11 at Laboratory No. 2 of the USSR Academy of Sciences" the tasks and deadlines for their implementation were stipulated:

"1. To oblige Design Bureau No. 11 (Comrades Khariton, Zernov):

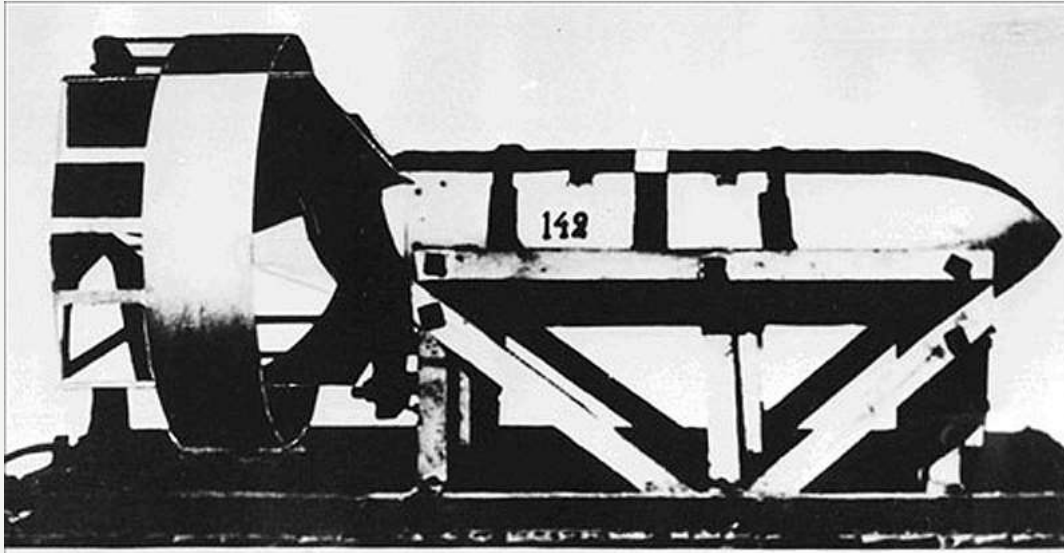
- a) to create, under the scientific supervision of Laboratory No. 2 of the USSR Academy of Sciences (Academician Kurchatov), the "Reactive Engine S" (abbreviated "RDS") in two versions - with the use of heavy fuel (version S-1) and with the use of light fuel (version S-2);
- b) to present the tested and manufactured first "RDS" in versions S-1 and S-2, 1 copy of each version, for state testing in stationary conditions: for version S-1 - by January 1, 1948, for version S-2 - by 1 June 1948;
- c) the first developed and manufactured "RDS" in the aviation version in the S-1 and S-2 variants, 1 copy of each variant, to present for state flight tests: for the S-1 variant - by March 1, 1948, for the S-2 variant - by January 1, 1949.

2. In order to ensure the tasks specified in paragraph 1, Design Bureau No. 11 (Comrades Khariton and Zernov) is obliged to perform the following work:

- a) develop tactical and technical tasks for the design of the "RDS" for the S-1 and S-2 variants by July 1, 1946."

By variant S-1 was meant the bomb that we now know as the RDS-1, S-2 - RDS-2 - the first version of the bomb with this name. "Heavy

fuel" - plutonium-239, "light fuel" - uranium-235.



One of the variants of the ballistic body for the RDS-2/S-2 bomb (<http://old.vniief.ru>).

Author: [DIMMI](#)

Created: 03.04.2013 17:39:30

Comments: 3

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RDS-3 (project, 1948)

DATA AS OF 2013 (in progress)

RDS-3 (project, 1948)



Atomic bomb (project). The bomb was created by Design Bureau No. 11 of the Measuring Instruments Laboratory No. 2 of the USSR Academy of Sciences (since 1950, the design bureau was transferred to the structure of the First Main Directorate under the USSR Council of Ministers). The development under the name RDS-3 (the third version of the first generation atomic bomb) was started by the decision of the special committee of June 5, 1948, secured by the Resolutions of the USSR Council of Ministers of June 10, 1948 No. 1989-773ss/op, of March 3, 1949 No. 864-328ss/op "On the terms of production of RDS-2 and RDS-3" and of June 5, 1949 No. 2243-879ss/op "On the terms of development and production of the product "RDS-3".

By the Resolution of the USSR Council of Ministers No. 591-236ss/op "On the plan of research and design work KB-11" of February 14, 1950, decisions were made to terminate the development of the RDS-2 and RDS-3 projects begun in 1948 ([source](#)):

"II. To amend the Resolution of the Council of Ministers of the USSR of February 8, 1948, No. 234-98, to cease development of the RDS-2 in KB-11, due to the fact that the (... quantities...) of uranium-235 required for this design can be used more effectively in the RDS-5 design.

III. To amend the Resolution of the Council of Ministers of the USSR of June 10, 1948, No. 1989-773 and June 5, 1949, No. 2243-879, to suspend development of the RDS-3 in KB-11, due to the fact that the RDS-5 design is currently being developed, which ensures better use of uranium-235."

Author: [DIMMI](#)

Created: 11.04.2013 23:35:03

Comments: 1

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APR-2 Hawk

DATA AS OF 2011 (standard replenishment)

APR-2 "Yastreb" / "Yastreb-M"

APR-2E "Yastreb-E"



Aircraft anti-submarine rocket torpedo. Developed by a cooperation of enterprises headed by GNPP "Region" (NII, Tomsk NIIEM, Leningrad Research Institute "Poisk", Design Bureau of the Petrovsky Plant, Perm NPO named after Kirov, Moscow Research Institute "Kvant") on the basis of APR-1. Chief Designer M. Lisichko. Sea trials of the torpedo began in 1969. State trials of the torpedo with the "Yastreb-M" control system were completed in 1976. In the same year, the torpedo under the name APR-2 was accepted into service. The first mention of the APR-2 in the press - 1992.



APR-2 torpedo at the military equipment exhibition at Knevichi airfield, Far East, April 9, 2012 (<http://quick-spinch.livejournal.com> , <http://bulat-dragon.livejournal.com>).



APR-2 air-launched anti-submarine missile (<http://www.airwar.ru>).



APR-2 "Yastreb-M" air-launched rocket torpedo. Elizovo airfield, Kamchatka, Air Force Day, August 15, 2010 (photo by A.A. Piragis, <http://www.fotopetropavlovsk.ru>)

Author: [DIMMI](#)

Created: 18.01.2009 00:39:26

Comments: [1](#)

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SNARS-250 / I-64

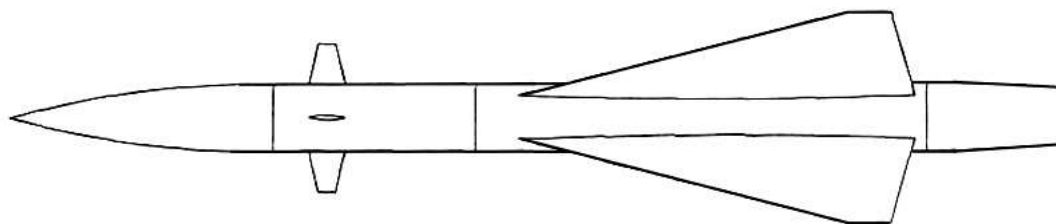
DATA AS OF 2013 (standard replenishment)

SNARS-250 / R&D I-64

★★★★

Self-guided air-launched missile / air-to-air missile. Preliminary studies on the subject of creating air-to-air missiles were carried out by a group of engineers from NII-1 MAP in the branch of NII #1 - former Plant #293 in Khimki. In June 1946, the branch was transformed into an independent plant. M.R. Bisnovat was appointed director of the plant and chief designer of the OKB at the plant, V.N. Elagin was appointed deputy.

The development of the air-to-air missile was assigned by Resolution of the Council of Ministers of the USSR #1175-440ss of April 14, 1948 and by order of the MAP of May 11, 1948 and assigned to the design bureau of Plant #293 under the leadership of M.R. Bisnovat (later - OKB-4, now - MKB "Molniya"). The tactical and technical requirements for the missile were issued by the 4th Directorate of the State Research Institute of the Air Force on June 9, 1948. Initially, the development was carried out as a research project. It was assumed that a guidance method would be used, which was the prototype of the proportional approach method that was later widespread. According to the assignment, the projectile was intended to destroy bombers from the rear hemisphere (ZPS) in pursuit, flying at speeds of up to 150-300 m/s and ranges of up to 5000 m. The approach speed in this case had to be at least 100 m/s. The decree set the deadline for the completion of the draft design - September 1948 - due to the complexity of the project, the deadline was not met. By the end of 1948, the design materials of related companies - Plant No. 40 and Research Institute-885 - were not ready. In the first quarter of 1949, the Design Bureau of Plant No. 293 (the prime contractor) presented a comprehensive technical project to the customer. Also in 1948, tests of rocket models in various configurations began in the T-106M and T-112 TsAGI wind tunnels. In 1948, Plant No. 293 developed and built prototypes of "product 9" for research in the TsAGI wind tunnels. In 1949, flight tests of "product 9" were conducted - a flying model with a liquid-propellant rocket engine for testing aerodynamics at high flight speeds. In addition to "product 9", the plant produced flight models (factory code "14/12" or "12", LM-12) for further research with various wing and tail profiles. In 1948, 6 copies of the LM-12 were built and one model was tested at TsAGI. In the summer of 1949, several LM-12 launches were performed at the Flight Research Institute of the Ministry of Aviation Industry. In 1948, a preliminary design for "product 14" was also released - the actual projectile for the I-64 research project. In 1949, the on-board equipment of the rocket began to be linked on a special model, and in the same year, assembly of aerodynamically similar rockets with autonomous control ("object 20") began. Control, recording and measuring equipment for recording flight parameters was placed on board the "object 20" rockets. In the same 1949, on the first series of "object 20", tests of the objects began on a Tu-2 aircraft specially equipped with suspensions and a launch system. In 1950 Ballistic launches of "Object 20" missiles without a guidance system were carried out.



Projections of the SNARS-250 missile (<http://www.airwar.ru>).

Author: [DIMMI](#)

Created: 15.01.2009 23:54:08

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K-8 / K-8M - AA-3 ANAB

DATA AS OF 2013 (in progress)

Rocket K-8 / K-8R / K-8T / product 24 - AA-3 ANAB

Missile K-8-2 / K-8M / R-8M / product 24M - AA-3 ANAB

Missile K-8M1 / R-30R / R-30T - AA-3 ANAB



Medium-range air-to-air missile. The development of the missile was assigned by the Resolution of the USSR Council of Ministers No. 2543-1224 of December 30, 1954 on the creation of homing missiles K-6, K-7 and K-8. The design was carried out by OKB-4 (later renamed NPO Molniya) under the leadership of M.R. Bisnovat and his deputy V.N. Elazhka starting in 1955. Several homing head variants were developed for the K-8 missile on a competitive basis. Factory testing of the K-8 missile began in 1957. Two Yak-25K-8 and two Yak-27K aircraft were involved in the testing. During the tests, 74 flights of carrier aircraft were performed, as a result of 7 launches, 4 parachute targets and three Il-28 target aircraft were shot down at altitudes of 9-10 km and ranges of 5-6 km. The development of missiles with radar homing heads was delayed - in August 1959, tests of the K-82 / product 24V missile with the PARG-1 semi-active radar homing head were completed, and tests of the K-83 / product 24D missile with the RGS-1 radar homing head were completed on November 2, 1959. The missile was not accepted into service.

In 1958, the creation of the modernized K-8-2 (K-8M) missile began. Testing of the K-8-2 missiles on the T-47 aircraft began in the first half of 1959. The interception complex with K-8M missiles and the T-47 carrier was presented for State tests on September 17, 1959. State tests lasted from November 1959 to May 1960. Due to the incompleteness of the RP-11 "Orel" radar of the T-47 / Su-11 interceptor, at the first stage a missile with an IR homing head was tested, and later - with a radar homing head. On February 5, 1962, by Resolution of the Council of Ministers of the USSR No. 139-67, the Su-11-8M interception complex with a missile named R-8M was accepted into service. The interception complex included four components: the carrier aircraft, missiles, the interceptor radar and ground support facilities. Serial production of R-8M missiles was carried out at the Izhevsk Mechanical Plant. A total of about 100 Su-11 interceptors were produced.



Yak-27K fighter, board No. 58, with K-8 missiles during testing (<http://www.arms-expo.ru>). Su-11, board No. 10, with K-8M missiles (<http://militaryphotos.net>).





K-8M1/R-30 missiles with radar seeker (left) and IR seeker (right) under Yak-28P, aircraft no. 15
(E. Gordon, From the jet family. // Wings of the Motherland. No. 9 / 1991)

Author: [DIMMI](#)

Created: 16.01.2009 00:10:19

Comments: [5](#)

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K-98 - AA-3-2 ADVANCED ANAB

DATA FOR 2013 (in progress)

Missile K-8M2 / K-98 / R-98 (R-98R / R-98T) / product 56 - AA-3-2 ADVANCED ANAB

Missile K-98M / R-98M (R-98RM / R-98TM) - AA-3-2 ADVANCED ANAB

★★

It was created on the basis of the [K-8M2](#) missile in OKB-4 (now NPO Molniya) under the leadership of Bisnovat. It was accepted into service in 1969. It is used from the PU-1-8 launcher (on the Su-15).



R-98T missile under Su-15TM (Malakhov S., Su-15: from flight practice. // "Aeroplan" No. 4/1994).

Author: [DIMMI](#)

Created: 01.03.2013 00:46:27

Comments: [6](#)

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X-28 - AS-9 KYLE

DATA FOR 2013 (standard update)

K-28P complex, Kh-28 missile / product 93 / product D-8 "Nakhodka" - AS-9 KYLE

★★★

Medium-range anti-radar missile. Development of the K-28P anti-radar strike complex with the Yak-28N carrier aircraft and Kh-28 missiles was started by the Decree of the USSR Council of Ministers of January 10, 1963. The main developer of the complex was OKB-115 A.S. Yakovlev, the development of the missile was carried out by OKB-155-2 (MKB "Raduga"), the chief designer was A.Ya. Berezhnyak. According to the Decree on the design of the missile, it was planned to launch the K-28P complex for joint flight tests in the 2nd-3rd quarters of 1965. At the end of 1964, at the suggestion of the Ministry of Aviation Industry, a decision was made to replace the solid propellant rocket motor on the Kh-28 missile with a liquid propellant rocket engine - the reasons were the mastery of the liquid propellant rocket engine technology on missiles of this class, the guaranteed achievement of a range of 120 km, necessary for the destruction of the Nike-Hercules SAM positions without entering their destruction zone. The replacement of the engine delayed the start of testing until 1966. When examining the preliminary design of the Yak-28N carrier aircraft, it turned out that, according to the results of calculations and blowdowns, when launching the first Kh-28 missile from under the wing of the aircraft and keeping the second missile under the other wing, the Yak-28N aircraft lost stability in roll due to insufficient efficiency of the ailerons. The preliminary design of the complex was not accepted by the Customer ([source](#)).

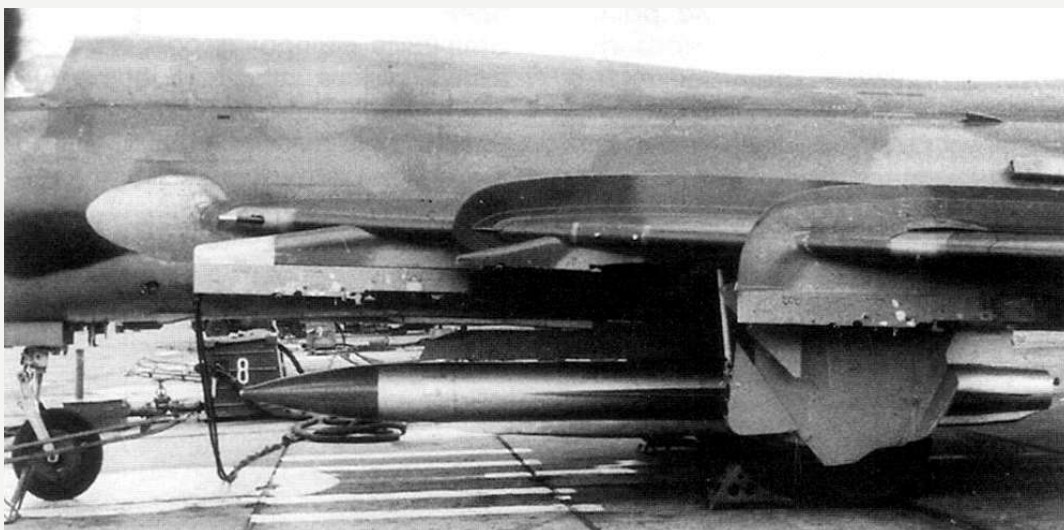
Subsequently, the Yak-28N prototype aircraft was nevertheless built and used to practice launches. The target reconnaissance station equipment was to be placed in place of the Initiative radar, with a pair of horn-like antennas installed near the leading edge of the right engine. The An-12BK flying laboratory aircraft was also used to test the system's equipment. The results of testing the Kh-28 missile from these aircraft were later used to develop the Kh-58 missile. Testing of the Yak-28N prototype carrier aircraft began in 1966, and in 1967, testing of the system's equipment began on it. The first Kh-28 missile launches from the Yak-28N were made in 1969. However, the aircraft was not put into serial production.



Preparing the X-28 missile for suspension under the Su-22 of the Vietnamese Air Force (<http://militarynuts.com>).



Training missile Kh-28 (Wings of the Motherland, early 1990s).



Missile Kh-28 under Su-17M3 (Markovskiy V., Prihodchenko I. Fighter-bomber Su-17. // Aviation and Cosmonautics. N 05 / 2012 via <http://crismo.msk.ru>).

Author: [DIMMI](#)

Created: 19.02.2009 00:42:00

Comments: [15](#)

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A-90

DATA FOR 2013 (requires updating)

A-90



Multifunctional aviation electronic warfare complex with a troop control system (TCS). It was previously believed that the A-90 "Yastreb" codename was used to develop an aircraft for control and retransmission of operational-strategic control data. As of 2011, the design of the complex was being developed by the Beriev Aircraft Company together with the Sozvezdie Concern, which is the leading developer of electronic warfare systems in our country. The head of the project development until September 28, 2012 was S.A. Atayants. The complex

with the A-90 aircraft is not an AWACS (*source - Explanatory*). The base aircraft is most likely [the Il-476](#) .

As part of the work on developing equipment for the A-90 complex, the Sozvezdie Concern received two aircraft (probably the Il-76) in early 2012. The October issue of the corporate newspaper " [Svyazist](#) " reported on the successful conduct in June 2012 of ground state tests of the equipment of the multifunctional airborne electronic warfare system developed within the framework of the R&D project "Discomfort". The R&D project used unique technical solutions in terms of high-potential antenna arrays and powerful microwave power amplifiers with liquid cooling. During the development, problems arose related to the obsolescence of the instrument base and the need for technological equipment, the creation of stands for working with powerful VHF and microwave frequency range transmitters. Therefore, a stand was created specifically for the development of the equipment and its testing, which ensures the possibility of testing powerful microwave amplifiers. The R&D project involved designers under the leadership of E.V. Astashova, the divisions of A.N. Konchakov, A.V. Lukanov, A.B. Krachkovsky and E.A. Rudnev of the Sozvezdie concern. Work on the complex will continue in 2013.

The data is hypothetical.

Author: [DIMMI](#)

Created: 29.06.2012 12:02:20

Comments: [3](#)

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K-10 - AS-2 KIPPER

DATA FOR 2013 (standard update)

K-10EN "Kometa-10" complex, K-10S missile - AS-2 KIPPER

★★★★

Anti-ship cruise missile. Developed by the decree of the USSR Council of Ministers dated February 3, 1955 in OKB-155 (Mikoyan and Gurevich), chief designer M.I. Gurevich. The technical requirements for the K-10 ("Kometa-10") system were formulated on November 16, 1955 - the system was developed by OKB-256 (A.N. Tupolev). According to the technical requirements, the first aircraft carrier of the system - [the Tu-16K-10](#) - was to be presented for testing on March 1, 1957. The first K-10S missile was released by OKB-155 in October 1957, the pilot batch was produced by Plant No. 256 near Moscow. The first flight of the experimental [Tu-16K-10](#) (No. 7203805) was on January 4, 1958. During the testing and debugging of the K-10S missile equipment, flying laboratories based on the Li-2 and Mi-4 equipped with a seeker head, as well as an SM-K analogue aircraft (a modification of the MiG-19) were used. The first launch of the missile in a throwable version was on May 28, 1958. Tests of the K-10S missile were conducted at the Vladimirovka test site ([Tu-16K-10](#) of Lieutenant Colonel V.V. Zentsov) - by the end of 1958, 5 launches were performed at a range of up to 96 km, in 1959 another 12 launches, but only 6 launches were considered successful.



K-10S - AS-2 KIPPER missile under Tu-16. Photo taken from a Norwegian Air Force F-16 fighter, 1980s (photo - Norwegian MoD via Bernard Duncan Lyng, from the archive of Graham Summers, <http://www.facebook.com/FlyingHighwithRedStars>).



Projections of K-10 (drawing by I. Prikhodchenko, from the article by Markovsky V., Perov K. Aircraft cruise missiles. // Aviation and Cosmonautics. N 10 / 2005)

Author: [DIMMI](#)

Created: 25.01.2009 15:23:02

Comments: [3](#)

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KS-172 / RVV-L / AAM-L

DATA AS OF 2012 (standard replenishment)

KS-172 / "product 172" / RRV-L / AAM-L

KS-172S-1 / AAM-L

★★★★

An ultra-long-range air-to-air missile. The development of the missile using the developments of the 3M83 missile of the S-300V air defense system was started by the Novator Design Bureau (Sverdlovsk, now Yekaterinburg) in 1991 (in 1984, *according to Karpenko*). A model of the missile called AAM-L (Air-Air-Missile - Long range) was first demonstrated in 1993 at the arms and military equipment exhibition in Abu Dhabi and at the MAKS-1993 air show. According to available information, ground tests of the missile were conducted in 1993 - probably throw launches. According to data from 2001, the KS-172 development program is not a priority for the Russian Air Force, and in December 2003, an export modification of the missile - KS-172S-1 - with a modified design was first presented at an air show in Dubai.

In the second half of the 2000s, the Russian Ministry of Defense held a competition for a long-range air-to-air missile. The competition was attended by OKB Novator with the KS-172S-1 missile and GosMKB Vypel with the *K-37* missile. The competition committee of the Russian Ministry of Defense denied OKB Novator permission to participate in the closed competition "Creation of a long-range air-to-air guided missile (OKB Grafoman - *source - Annual report*)" for formal reasons (*source - Karpenko*).



A model of the KS-172 missile at an exhibition in Zhukovsky, 1993 (photo - Piotr Bu tovski, Nowa Technika Wojskowa №1 / 1994).



A model of the KS-172S-1 missile at the MAKS-2005 air show (photo from the Rambo54 archive, <http://militaryrussia.ru/forum/>).



A model of the KS-172S-1 missile under the wing of the Su-35BM, board №901, probably at the MAKS-2005 air show or later (photo - Miroslav Gyurosi, <http://www.ausairpower.net>).

Author: [DIMMI](#)

Created: 25.01.2009 01:00:56

Comments: 2

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Skat (project).

DATA FOR 2012 (in progress)

"Skat"



Project of a strike unmanned aerial vehicle (UAV) / prospective low-signature combat UAV. Development of the UAV was initiated by RAC MiG in 2005. The Skat UAV is designed to strike at previously reconnoitered targets, such as air defense systems, as well as in conditions of strong counteraction by enemy anti-aircraft systems. TsAGI, the 2nd Central Research Institute of the Russian Ministry of Defense, the Vega Radio Engineering Concern, and GosNIIAS participated in the cooperation in developing the Skat UAV. A full-size model of the Skat UAV was built at the RAC MiG experimental production facility in the summer of 2007 and was first shown to a group of journalists at the MAKS-2007 air show in Ramenskoye in one of the RAC MiG hangars. Official permission to show the model of the Skat UAV was received on August 21, 2007 by a special order of the President of Russia.

In the future, the UAV creation program involves the creation of a manned "Skat-PD" and then an unmanned prototype UAV "Skat-D". In 2007, the assessment of the terms for the creation of prototypes and the start of flight tests of the UAV "Skat" was very optimistic (2-3 years). It was also assumed that the UAV could be offered to foreign customers. As of 2012, the development of the UAV "Skat" has already been discontinued, but the results of the work can be used in the design of new models of attack and other UAVs.



Model of the Skat UAV, Ramenskoye, August 23, 2007 (<http://war.mk.ua>).



Model of the Skat UAV, Ramenskoye, August 23, 2007 (photo - Sergey Kuznetsov, <http://www.airwar.ru>).

Author: [DIMMI](#)

Created: 07.10.2012 22:29:44

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An-72R / product 88

DATA AS OF 2012 (standard replenishment)

An-72R / product 88

★★★

Aircraft for radar reconnaissance of ground targets and target designation for ground and air assets. Development of the reconnaissance version of the An-72 within the framework of the Zircon R&D (presumably) was carried out by the Antonov Design Bureau in the second half of the 1980s, the lead designer of the aircraft was V.V. Nebaba. In terms of its purpose, the aircraft was an analogue of the American Boeing E-8A J-Stars. It was assumed that the An-72R aircraft would be used as part of reconnaissance and strike complexes (RUK) at the front and army levels.

The technical specifications for the creation of the complex were apparently approved in 1986-1987. The Resolution of the USSR Council of Ministers on the creation of the complex provided for the construction of three experimental flight models for conducting joint flight tests with parallel joint State laboratory tests of a special equipment complex. In order to speed up the creation of the "88" product, it was proposed to begin testing the experimental systems of the complex, and the complex as a whole, on experimental flight models.

In total, three serial An-72 aircraft were converted under the An-72R project, and the fourth An-72 aircraft was sent for conversion to the experimental production of the Kiev Mechanical Plant (OKB im.O.K.Antonov) in 1990, and its conversion was not completed. The first An-72R (serial No. 01-04) made its maiden flight in 1986. A mock-up of a special equipment complex was mounted on the first flight model. Real equipment complexes were installed on the second and third flight models of the "88" product, which were delivered with constant delays.

The first three An-72R aircraft were transferred to the Vzlet Scientific and Production Association (Moscow, Yermoolino airfield) for testing. The tests were again delayed due to the fault of the developer of the special equipment complex - NPO Palma. Joint tests with the State Research Institute of the Air Force at the testing ground in Akhtubinsk were conducted in 1988-1996, but were not completed. During the joint tests, NPO Palma, with the support of the military-industrial complex and the Air Force, demanded the construction of a fourth experimental model to speed up the tests of the complex. At the same time, the three existing flight models were not used actively enough. According to the plans of the aircraft manufacturers, the conversion of the new fourth aircraft was supposed to take one year. NPO Palma proposed a set of equipment intended for laboratory State tests for installation on the fourth aircraft. The fourth model of product "88" was prepared for installation of the equipment complex, but before the collapse of the USSR the equipment did not arrive, was not installed, the aircraft remained disassembled and was later written off.

The modification is called An-72BR in some sources, and sometimes the modification is mistakenly called a "relay aircraft" for the An-71 AWACS aircraft.



An-72R, No. 38 red, parked in Akhtubinsk, probably 2000 (<http://forums.airbase.ru>).



An-72R, serial No. 10-09, territory of the Aviant plant, Kiev, March 25, 2007 (photo - Vasily Koba, <http://spotters.net.ua>).

Author: [DIMMI](#)

Created: 03.06.2012 00:37:05

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